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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent application of:

Applicant(s): James L. Fergason

Serial No: 10/796,259

Filing Date: March 9, 2004

Title: APPARATUS AND METHOD FOR PREPARING, STORING,
TRANSMITTING AND DISPLAYING IMAGES

Examiner: Steven E. Holton

Art Unit: 2629

Docket No. OSVRP0152USA

PROPOSED AGENDA FOR DECEMBER 7, 2011 PERSONAL
INTERVIEW WITH EXAMINER STEVEN HOLTON

Background

Evolution of System Synchronized Brightness Control (SSBC)TM / Dynamic Contrast Control

- Description of technology generally – expansion of range and/or number of shades of gray.
- SSBC/dynamic contrast control is widely used in most, if not all, current LCD televisions.

Implementation of SSBC

- There are many ways to implement SSBC, and many different algorithms are being employed to implement SSBC.
 - Examples of different algorithms will be discussed.
 - Calculated from the peak and minimum video brightness values.
 - Calculated from the average video brightness value.
 - Calculated from the content of one video frame or from multiple video frames.
 - Calculated for all white light or calculated independently for red, green and blue.
 - Calculated globally for the entire image or calculated for local regions.
 - Modulating the amplitude of the backlight intensity or modulating the duration of the backlight pulse width.

- Because of the many different algorithms being employed, it is possible to have a great variety in images on different display systems.
- As a result of this variety in SSBC algorithms, the intended display conditions may not be realized on certain display systems.

Invention

- The present application recognizes the above-noted potential shortcomings due to the great variety in implementing SSBC, and provides a solution to overcome these potential shortcomings.
- One aspect of the claimed invention relates to display systems and methods including an input signal having image data and display control data. Other aspects of the claimed invention provide for encoding and decoding display control data separate from the image data, but together in the same input signal with the image data. Components of the display device are configured to process the display control data included in the input signal and use the display control data to process the image data and synchronously control the passive display and illumination source based on the display control data.
- Discussion of "image data" vs. "display control data"

How Pending Claims Distinguish Patentably Over References

- The pending claims relate to aspects of display systems and methods including an input signal having image data and display control data. Components of the display device are configured to process the display control data included in the input signal and use the display control data to process the image data and synchronously control the passive display and illumination source based on the display control data.
- Various conventional display systems, like the system described in Sakashita, include different image enhancement algorithms that operate based on the received image data. The claimed invention provides the option of bypassing the variable image processing and enhancement algorithms resident on various displays, thereby providing more consistent image display and image enhancement regardless of the image enhancement algorithms resident on a particular display. The claimed invention allows for the provision of a "dumb display" that does not makes use of an image enhancement algorithm, but displays the image based on the received display control data. Also, the creator of a sequence of video images can set the display parameters before delivery of the image signal to a display device.

- The rejections of the pending claims are based in large part on Sakashita, and, in particular, Fig. 8 of Sakashita and the corresponding description. Sakashita does not support the rejections of the various claims because Sakashita does not disclose the claimed provision of operating with an input image signal having image data and display control data, and controlling how the image data is displayed based on the received display control data. Other aspects of the claimed invention include the provisions of encoding and decoding display control data separate from the image data, but together in the same input signal with the image data. As shown in FIGS. 8 and 9 and the associated description, Sakashita deals with a conventional display system having its own resident image enhancement algorithm (Sakashita's DSP 57)¹ in which the image data is processed to enhance the displayed image. For example, at column 11, lines 17-32, Sakashita discusses its image processing algorithm that, among other things, calculates luminance distribution, maximum value, minimum value, average value and histogram.
- By way of example, claim 16 recites a display system for passive displays, wherein the display system is configured to receive an input signal including both display control data and image data. The display system includes a control configured to process the display control data included in the input signal and to control the optical characteristics of incident light to a passive display and to process the image data to control optical characteristics of the displayed image based on the display control data.
- Sakashita fails to disclose or suggest the claimed display system, including a control configured to process display control data within the input signal and to control the optical characteristics of incident light to the passive display and to process the image data to control optical characteristics of the displayed image based on the display control data. Rather, Sakashita makes use of an image enhancement algorithm based on the received image data.

¹ Sakashita, col. 10, line 61.